

CLAIMS

What is claimed is:

1. A method of manufacturing reflective multi-layered thin film mirror for extreme ultraviolet radiation exposure processes using atomic force microscopic lithographic technology comprising:
 - (a) depositing a reflective multi-layered thin film and a capping layer on a silicon substrate;
 - (b) depositing a thin metal film selected from the group consisting of chromium, tantalum, and tungsten as an absorber layer on said multi-layered thin film and said capping layer;
 - (c) selectively forming metal oxide structures with fixed height and width on substrates by applying electric field between cantilever tip and said multi-layered structure of the substrate using an atomic force microscope; and
 - (d) forming ultra-fine line width absorber patterns by etching of said metal oxide structure.
2. In Claim 1, said method further comprises a step of depositing of thin organic film as a resistant material on said thin absorber metal film after the step of depositing a thin metal film as an absorber layer, and is characterized by washing off of this thin organic film after etching of said metal oxide structure.

3. In Claim 1, said forming of metal oxide structure comprises a step of controlling pattern sizes via adjustment of applied voltage, lithographic speed and humidity.

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